

QUANTA

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Information on the Association

Membership of QUANTA, the independent QL user group, is by annual subscription. The Membership Secretary can supply full details. Copies of the association's constitution & annual accounts are available from the Secretary. There is an extensive software library. There are active national subgroups. Details are given in the Member's Guide and in this magazine.

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A very big thank you to ALL members of Sussex QL User Group for organising this year's AGM and Workshop.

Bom-Banes Restaurant did us and themselves proud on the Saturday evening with an excellent dinner followed by a most unexpected and delightful "Fringe" Cabaret.

Attendance at the Workshop and AGM was just over 10% of the current membership – which is the level it has been for many years. Sarah is giving a fuller report in this magazine.

Members may care to note that a loan has been made to RWAP Services to facilitate the purchase of 200 QL keyboard membranes, and there was a most constructive discussion on using QUANTA's money.

**COPY DATE for JUNE/JULY 2007 ISSUE is:
5TH JUNE 2007**

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Introduction

At the Hove meeting on May 28th 2006 I gave a talk about the U.S. Global Positioning System (GPS) and demonstrated the electronics and the SuperBASIC program I had written, under QPC, to display some of the data that can be received from it. I promised to write about it for both QUANTA and QLToday and this is the result.

The QL interest is really just in the program but to use real time data from GPS some additional electronic hardware is necessary, so in this article I describe: how the GPS works; the hardware I use; and the program; with an account of the problems I encountered and the solutions that emerged.

My program is run in one of several modes. If the hardware is available then it can extract data from the GPS receiver and display either the orbits of the satellites on a picture of the sky, figures 5, 6, 7 and 8, or, if it is loaded and run in a laptop and carried around, a plot on a chart of the track moved along as the journey progresses, figure 9. Don't get too excited – the chart is a blank with only lines of longitude and latitude marked -- this is not a navigational system. Both sets of data, stationary or moving, can be saved, and viewed again as simulations.

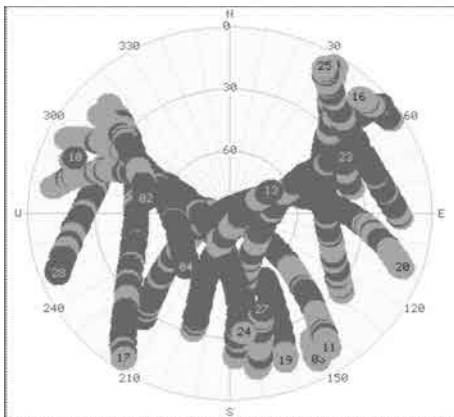


Fig. 5 - Orbits as 'sausages' over a five hour period

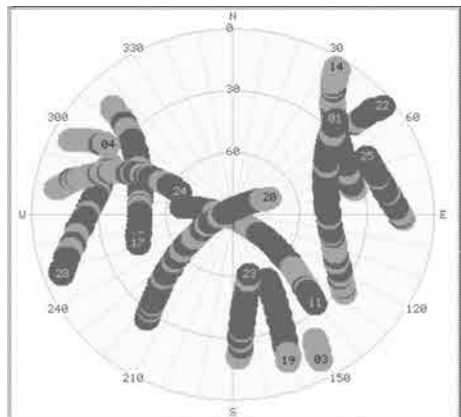


Fig. 6 - As Fig. 5 but interrupted after two hours Or so to help make sense of it.

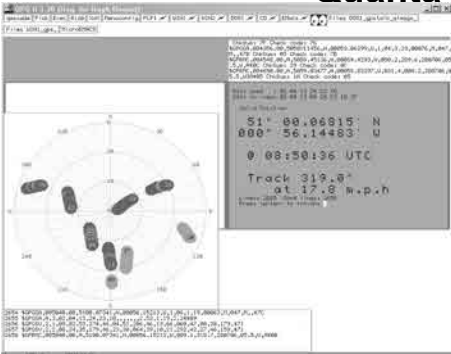


Fig. 7 - Whole Screen of an orbit's display showing all windows.

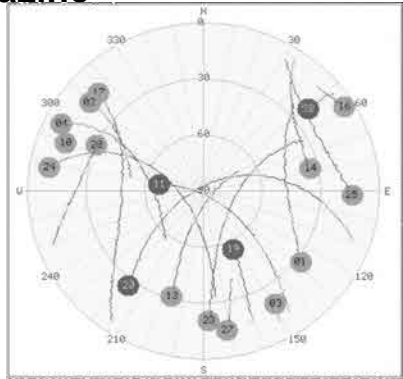


Fig. 8 - As Fig. 5 with lines instead of 'sausages'.

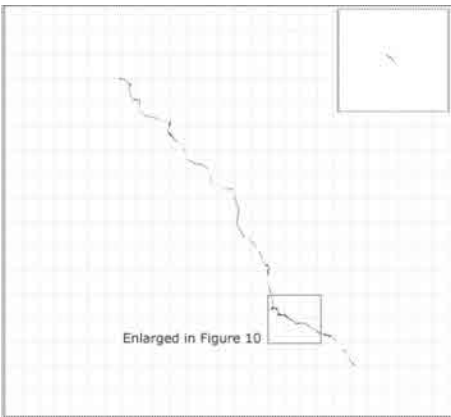


Fig. 9 - Track from Bognor Regis to Petersfield - this replaces the orbit's window.

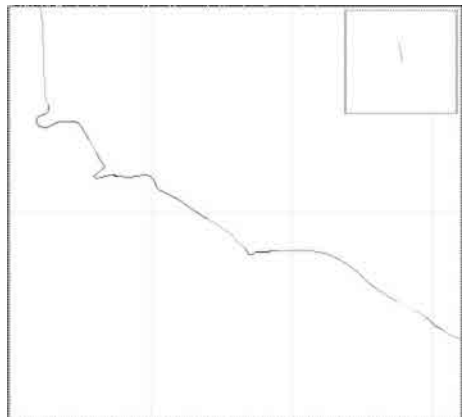


Fig. 10 - Enlargement of part of Fig. 9 showing the detail of the data

I hope to deposit the program, with files of data, in the Quanta library, so you can experience its delights without having to buy a receiver and build the circuitry, or, indeed, without typing anything at all.

A caveat. Although I give this information in good faith, and as accurately as I can, it is a description of what I have done, not a recipe. If you want to try it out then you must make sure for yourself that what you do is correct. I have already blown up one receiver through carelessness: so be very careful.

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Overview

GPS is a method of location using the calculated distances from a swarm of about two dozen artificial satellites, orbiting at around 12000 miles from the centre of the earth, in twelve hour orbits, and broadcasting data of time and position that allow a suitable receiver to calculate its own position in latitude and longitude, and its height above a datum. The orbits criss-cross in the sky so that any place on earth always has enough in view to get a good fix.

I've been fascinated by this ever since I first heard of GPS about ten years ago, but the receivers were too expensive at that time, and I am much more interested in how it all works than simply finding out where I am, so a complete but inaccessible unit wasn't really what I wanted. Now the prices have come down and you can buy hand held navigation equipment for under £200, or a bare receiver module for £32 (+VAT etc.) (1) (numbers in brackets refer to the Sources list at the end of this article). I bought a more expensive module (2) for about £60 (VAT etc made it £85) eighteen months ago and started experimenting with it. It is the second I have tried, I had blown up the first (3) through getting its connections wrong.

My module, and as far as I can see most others, outputs its data in the form of ASCII text easily input to a computer for processing. As well as its current latitude and longitude -- which is mainly interesting if you're on the move, once you've found out where you live -- the module supplies the position (bearing and elevation) of each of the satellites in view, which of course changes with time, giving an opportunity for a changing display even for a stationary receiver. So my first objective was for a graphical picture of the sky and the satellites on it.

This was the system I described at Hove. Since then I have gone on to use a laptop for a mobile system I can take in the car to display the speed, heading, and the track followed (also output from the module), with all the data stored in a file to view or use later, figure 9.

SuperBASIC is ideal for these applications, with its combination of hardware access, mathematics, and graphics, with a superb program editor (ED) giving quick and easy modification and testing.

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GPS Basics

Fairly basic equipment like mine gives an expected positional accuracy of ten to twenty metres

This in itself is truly remarkable considering that it represents the measurement of distances up to 20,000 kilometres to an accuracy of a few metres. With suitable, and much more expensive, equipment you can find your location (actually that of the antenna) to an accuracy of a centimetre or less -- even more remarkable. You now see surveyors on civil engineering and building sites using GPS instead of the traditional theodolite.

One thing I must get out of the way: if you search the Internet for GPS information you will see a lot of mentions of SA (Selective Access) in older documents. This was a security measure by the U.S. to prevent terrorists from using the service for really accurate fixes, called Precise Positioning System (PPS). Ordinary users were restricted to Standard Positioning System (SPS). SA was cancelled in 2000 and can now be ignored: anyone with the right equipment can get the maximum accuracy possible. Don't confuse this use of PPS, which is mentioned only here in this article, with Pulse Per Second which we will meet later on.

The satellites circulate along paths closely monitored and controlled by ground stations, and they have, of course, to be controlled to a greater accuracy than the position you are trying to calculate. Even so, at these accuracies, the gravitational pull of mountain ranges, and even weather systems, make the path more like that of the track of a bicycle about the general forward direction. So, to know where the satellites are, two sets of data are needed: firstly the basic orbital data, called 'almanac' in the jargon, which is stored in the receiver and is valid for several months at a time; secondly, detailed information about where the satellite is along this orbit, and any deviations that are going on, 'ephemeris', which changes frequently and is downloaded automatically from the satellites from time to time. I use the analogy of a train timetable: the printed version tells you what should happen -- the almanac; but you also need detailed information, on the day, of cancellations, lateness, platform changes -- the ephemeris.

The basic distance measurement is made by calculating the times the radio signals takes to travel from the satellites to the receiver, but it is difficult to make a very accurate clock in a reasonably cheap receiver so each satellite has a number of atomic clocks on board, again monitored and controlled from the ground and the receiver synchronises its own clock to GPS time. A pay-off from this is that you can get a very accurate time check

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-- more than twice as accurate as the Rugby transmissions used in radio-controlled clocks.

Each satellite transmits its information over several minutes. At switch on, the receiver has no idea where it is, on the earth, above or below the surface, or way out in space: it has to check that the almanac it has stored is current, or to read in a new one, and then get the ephemeris, a process that can take anything from a few seconds, if the 'off' time has not been too long, to an hour or so if it all needs to be read in.

To get a fix, four satellites are needed: the distance from the first defines a spherical 'surface' on which the receiver (strictly its antenna) must be, somewhere. The same applies to a second satellite, so the antenna is now known to be located on the circle where this 'sphere' cuts the first, since it must be on both. A third sphere cuts this circle in two places, and a fourth sphere passes through just one of these, giving a unique position relative to the satellites' frame of reference. Time data sent by the satellite are used at the receiver to make the calculations.

However these measurements and calculations are not precise, so the 'spheres' will not meet exactly at the same point. More satellites' distances are measured giving a spread of intersections of the spheres over a small space called a "resection". The size of the resection gives a measure of the additional inaccuracy called "Dilution Of Position" or DOP, above that expected from the inherent tolerances of the system itself.

Where on Earth are we?

To know this we need to take the position obtained as described, relative to the satellites, and relate it to the Earth's surface, introducing a whole lot of new problems. Ideally we want our position in latitude and longitude, or some equivalent like an Ordnance Survey (OS) National Grid Reference.

Traditional marine navigation, giving a fix to a mile or so, can treat the Earth as a sphere, and use relatively simple trigonometry to calculate the position from a measurement of the elevations of the sun and/or stars at known times. The more precise GPS fix, and indeed mapmaking like the OS which aims at at least a two metre accuracy over the whole country, needs a model closer to the true shape of the Earth. However the Earth is rather bumpy, so it is 'Mean Sea Level' (MSL) that is taken as the 'surface' to work on: this real shape is called a "geoid", which, idealised to a lesser degree of accurate fit, becomes an 'ellipsoid' -- a mathematical shape made by

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rotating an ellipse round its minor axis, in this case to make a 'bowl' shape (as in the game of bowls, i.e. not a 'rugby ball' shape). The great advantage of this model is that it is easily defined by just a few numbers, or parameters. The internationally agreed ellipsoid is WGS84 (6) and most GPS receivers give a position on this as the basic fix. As in all coordinate systems it needs an origin, which is basically the centre of mass of the Earth. The deviation of the ellipsoid from a sphere, the 'eccentricity', is only about 40 kilometres, or 0.3% of the Earth's average diameter of 12800ish km. It is all a deep and complex subject, well explained in (4).

There are a lot of 'however's' in all this, and the next is that, although WGS84 or other global ellipsoids are relatively easy to calculate, none is close enough to the measured MSL everywhere (anywhere?). This was realised early in the nineteenth century when the OS first surveyed the country. The then Astronomer Royal, Sir George Airy, calculated a better local ellipsoid reference for the UK, now called 'Airy 1830', which was used for the OS. In modern times, Airy 1830 has slightly different radii, origin, and eccentricity from WGS84, but again the parameters are few and easily converted (in all this 'easy' means compared with the enormous mass of data and calculation necessary if a more detailed model was used; the maths looks pretty horrendous in any case.)

There's a good story here (8). One axis for Airy 1830 uses, of course, the Greenwich Meridian. Originally defined by the position of the transit instrument built by the first Astronomer Royal, Flamsteed, in 1685 when the Greenwich Observatory was established to gather astronomical data for marine navigation, in 1725 the meridian moved 73 inches East to where the next Astronomer Royal, Halley, built his transit when he discovered that Flamsteed's instrument was subsiding out of alignment. With the accuracies expected at the time the small change in position did not matter. In 1750 Bradley built a more modern transit a further 436 inches East and the OS started with this as its datum; this instrument still exists at Greenwich in its original observing room. In 1850 Airy was after even greater accuracy and built the present transit at 19 feet East of Bradley's, sending a memo to OS to inform them of the change in the Meridian. The brass strip showing this meridian for tourists was added in the 1970s.

Unique among major countries, the UK was re-surveyed in the twentieth century, from about 1938 to 1979, to correct anomalies that more accurate surveying techniques had revealed. The new survey followed the earlier one, from a base line across Southern England, with all other points fixed by measuring angles. As a check a second 'base line' across Scotland was measured, and came out well within the accuracy expected. But the

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new survey placed the 'brass strip' Greenwich Meridian at 00 degrees 00' 00.418" E longitude -- an 'impossible' result, 26.4 feet out. What had happened was that the first OS had 'forgotten' about Airy's memo and continued with Bradley's meridian. When this was taken into account the discrepancy was well within the allowed tolerance. However all OS maps continue to be based on Bradley's Meridian, over eight metres East of what you see as 'The' Greenwich Meridian if you go to the Observatory.

At the accuracies of GPS, tectonic drift of the continents is apparent, and they all move in different directions (11). Based on an average over the world, Europe including UK is moving NE at about an inch a year, almost a metre since WGS84 was established. To avoid the continual updating of map data, a reference called European Terrestrial Reference System (ETRS89) is used that is fixed to, and moves with, Europe, with transformation data to and from WGS84 provided by national organisations.

The WGS84 meridian and origin are based on an average of the world, made so that the transformations from local data is on average as small as possible. On this system the Prime Meridian, on which all GPS is based, is a further 334 ft East of Airy's, and not marked with a brass strip as far as I know.

Further complications arise because latitude and longitude, on the near spherical Earth, are curves, whereas National Grid lines are straight lines on a flat map. (6 page 35) Yes, I know it's really a cylindrical map, but that is another story.

The net result is that a GPS WGS84 Latitude and Longitude plotted on an OS map places you at roughly 120 metres NWxW of your true position -- I've seen various estimates, but this looks the most likely, I took it from the plan of Southampton University on page 4 of (6), and it fits quite well with the figures I've given for the Meridian. Your GPS device may do the translation for you, but it is something to check.

In the next issue we will be looking at GPS Data followed by the remainder of this intriguing article over the next few issues. Thanks Hugh. [Ed}

An email meeting has been held after an application by Rich Mellor of RWAP Services for a business loan to enable him to order a second batch of 200 QL keyboard membranes. This loan has been approved, an agreement drawn up and this was completed at the AGM. The loan is for 1 year and is therefore repayable by 15th April 2008.

A Committee meeting was held at Portslade on 15th April 2007 immediately after the AGM. John Mason formally welcomed Dan Abbott onto the Committee. Discussion was held on the way forward with the library as Roy Brereton is no longer on the Committee. Currently the library is available to members both on individual 3½" floppy discs and on a CD, but there has been no call for any copies in over a year. The process for checking new software for compatibility on all QL platforms was also discussed. The matter is to be put on the agenda for a future meeting for further discussion after an appeal has been put into the magazine for someone prepared to take on the Librarian and Software Controller's role.

The Committee is to look into a 'party' in 2009 to celebrate the QL's quarter century. It was suggested that we should invite all QL users (and not just QUANTA members) to join us for this. Input from members would be welcomed as soon as possible regarding possible format, location etc.

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John Gilpin

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Wanted:

QUANTA are always on the lookout for Second User QL related items which are no longer required by their owner.

Do you know where there is some hardware, Software (original) books etc laying about doing nothing? Give me a call or send me an email.

John Gilpin QUANTA Treasurer. Contact details inside front cover.

For Sale:

QUANTA have the following second user Items for sale:

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- ditto - 4 in Plastic Wallet - £0.30

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All the above items are subject to post and packing charges at cost.

Enquiries to treasurer@quanta.org.uk

CHRISTMAS CHALLENGE 2006

John Gilpin

Since there were NO entries to the programming challenge issued by the QUANTA Committee in conjunction with Steve Poole for Christmas 2006, the prize has been returned from whence it came and we will get our thinking caps on again for next Christmas - unless you would prefer to concentrate on the turkey and sprouts rather than putting your mind to some SuperBASIC code and some mathematical formulae. I'm not even going to hold my breath while the emails flood in to my inbox as you tell me if you are interested in a Christmas Challenge or not. I don't think that the QUANTA Magazine has ever published a "Letters to the Editor" article. I received one just recently from a Qler in Spain and I hope to print a few lines from it next issue. I can't believe the content and I hope to put matters straight as we cannot afford to ignore one of our most experienced QL Programmers.

Watch this space.

Jan Jones gives an introduction to LOCAL identifiers in her 'SuperBASIC Handbook', by Quanta. This goes a good way to clarifying ideas, but it is not complete unless you also look up the assignment and reassignment of routine parameters. She describes to some extent how the QL achieves this by manipulating the name-table, a core-notion for those who like to know what is going on inside their machine.

You all know what a LOCAL identifier is, I am sure, but it is important to realise what Local-names are:

```
100 a=1: b=2: PRINT c
110 DEFine FuNction c: LOCAl a,b(2),PRINT(3,4)
```

a and b on Line 100 are Global variables, whereas a b and 'PRINT()' on Line 110 are as follows : a is one variable ; b is one one-dimensional array (DIM'ed by b(2)) ; whereas PRINT(3,4) is one two-dimensional floating-point array, which will replace the Global KEYword 'PRINT' within the nesting of the routine! This demonstrates very well the principle of LOCAl names...

Now on to the subject of local parameters: The simplest form of Local value is the sub-expression, (or similarly the literal parameter). After evaluation, these expressions reassign nothing at all, as they have no name, and values are associated with names via the name-table!

```
100 x=1: x=y(x,1): print x!w!z
110 DEFine FuNction y(w,z): RETurn w+z
```

That should demonstrate that both w and z formal parameters are local to the function y. Now a little more confusing:

```
100 ct=99: loop ct: print ct!kt
110 DEFine PROCEDURE loop(kt)
120 LOCAL ct: ct=kt
125 ct=ct-1: if ct=1: RETurn: ELSE loop ct
130 END DEFine
```

kt is 0 after processing because previously-undeclared formal parameters are not in the name-table and so they are not associated with any value, unlike Global or (temporary) LOCAl variables. ct is printed as its original value of 99, as, (in line 120), ct is made local to its nested subroutines at every descending level. Yes, you've guessed it : loop is recursive. You knew

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how to implement FOR and REPEAT loops, now you know how to code recursive loops, which take up less place in the listing too!

Don't forget, the easiest way to make actual Global parameters local is to enclose every one in brackets in the call.

Don't use more than 10 formal parameters in a routine definition, or more than 10 LOCAL identifiers either, as, under QDOS, the name-table will get corrupted, and while the program is parsing it will stop with an error-message as it will not be able to find certain names!

MEMBERSHIP SECRETARY'S REPORT 2006

John Gilpin

I know that Annual Reports by the committee are usually published BEFORE the AGM but last year I thought that it would be more up to date if I reported on the Membership figures just before the AGM in April. Some extremely bright QUANTA Member immediately noticed the unintended large difference in membership level compared with the year before. In order to avoid this anomaly I decided to take the figures just before the AGM again so that the figures represented the true membership level compared with the previous year. The difficulty is that at the QUANTA Year-end - December 31st, over half of the subscriptions fall due and depending on what day of the week New Years Day falls on, I may have already received a largish number of Standing Order subscriptions. What I have been asked to do is to calculate the membership figures on December 31st (before they fall due) and offer an updated figure at the AGM to indicate any resignations (or just non-payments) at the New Year Subscription Renewals. However, the figures I presented to the AGM 2007 are as follows:

As at 13th April 2007, (this date chosen to be consistent with the 2005 figures reported after updating) the QUANTA Membership was made up as follows: (2005 figures in brackets for comparison)

	UK	OS
Members	160(180)	26(29)
Associate Members	3(3)	Nil(Nil)
Honorary Members	3(3)	1(1)
Other Members	3(3)	1(1)
TOTALS	169(189)	27(30)
Combined Total		196(219)

John Gilpin, Membership Secretary.

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LEVEL 2 UPGRADE ROM MANUAL

Dilwyn Jones

Following recent discussion of the Level 2 Upgrade ROM for SuperQBoards and Trump Cards on the QL Users mailing list, I have been given permission to put a replacement manual on my web site. The Level 2 Upgrade rom image is not included (it is copyright Jochen Hassler).

The upgrade ROM provides level 2 directories on SuperQBoards and Trump Cards. It includes the ATR device driver for reading Atari and DOS format disks.

Please note that it is not quite the same as the level 2 ROM built into Qubbesoft Trump Cards - that ROM does not include an ATR device driver.

<http://dilwynjones.topcities.com/qldocs/qldocs.html>

Scroll down to the bottom of the page to click on the download link.

In time, this will be added to the QL Documentation CD in a wider choice of formats than I'm able to include on my web site.

QL DOCUMENTATION CD

Dilwyn Jones

Version 2.90 of the QL Documentation CD is now available. As it is essentially freeware, you should be able to get copies from your local QL software traders soon. A copy has been sent to Quanta for members to order through the Quanta librarian (please enquire to the Quanta librarian for costs etc).

Changes to this CD in the last few months include:

v2.86 (21/06/06) - Corrections to the QL graphics file formats document

GRAPHICS_doc in Graphics-> folder.

Added new article about differences between QL screens, PIC files and PSA files. Document in Graphics-> folder.

v2.87 (06/08/06) - Easel graphics file article added.

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v2.88 (25/01/07) - Qubide manuals and sources added. QEPIII manual added.

v2.89 (22/02/07) - Turbo and TurboPTR articles added.

v2.90 (29/03/07) - Level 2 Upgrade ROM replacement manual added.

Some of the documents are available from my web site at <http://dilwynjones.topcities.com/qldocs/qldocs.html> although limited space there means that only a selection of the more popular documents are there, usually in one file format only, whereas the CD contains copies of most in a choice of QL text or doc files and Windows DOC, RTF or PDF documents.

EINDHOVEN MEETING DATES IN 2007

1. 16 June 2007
2. 20 October 2007

As these meetings are workshops as well, bring along your QL hard/software. Overseas visitors are welcome at local meetings too.

STIQQIES

Dilwyn Jones

Stiqqies is a new freeware program from Dilwyn Jones. Basically, it provides an electronic version of those sticky little coloured paper notes you affix to your desktop to remind you of things! (Am I allowed to compare it to Post-Its?)

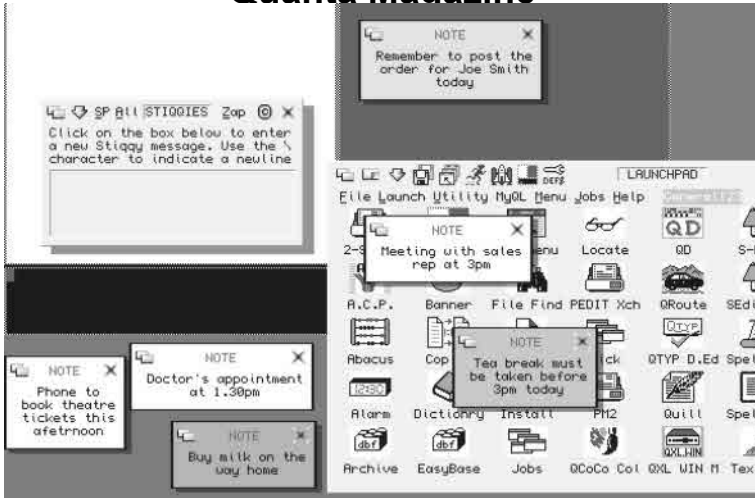
Take advantage of your SMSQ/E system's high resolution screen (and high colour if you have it) to pin little messages to your screen. The program needs Window Manager 2, which means QDOS with pointer environment version 2 or SMSQ/E version 3 or later.

It's free, easy to use and available now. It may be downloaded from:

www.dilwyn.uk6.net/misc/index.html

See screen shot examples overleaf:

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My sincere apologies to the author of the next article who's name has somehow become detached from the text of the article. However, since the topic is continuously being queried I decided to publish it, hoping that some help will be gained from the content. [Ed]

Text87 ON THE Q60

Running Text87 on the Q60 involves two steps: getting it to run with a high resolution display and, more importantly, getting it to run with any screen resolution.

Text87 uses the MOVEP instruction, which is not present on the M68060 CPU. In order to get it to run you need to LRESPR the file "movep4smsq60_cde" at boot time. This ensures that if any program tries to do a MOVEP, the instruction will be replaced by code that works. The problem only arose with version 3.0 of SMSQ, when MOVEP was removed from the Q40/Q60 version and "movep4smsq60_cde" was dropped from the supplied boot as "no longer necessary". Evidently the SMSQ developers don't use Text87!

The patch described in Quanta 23(5) will then enable Text87 to use the high resolution screen.

Thanks are due to Duncan Neithercut, who supplied me with this information via the q-v-d mailing list. It's a pity that no one answered when I raised the question in Quanta back in 2003 ...

Davide has informed us (via the ql-users list) that Andrea Carpi has released a new version of Euro Converter, a useful tool to convert from/to the former European currencies. The new version is now GD2 compatible (Q40/60 users would be welcome to test the programme as it has been tested on QPC2 only). It now includes the Slovenian tolar as Slovenia will be using Euros from 1/1/2007.

Euro Converter can be downloaded from:

<http://it.groups.yahoo.com/group/sinclair-italy/files/> (the file area of the Italian QL mailing list)

OR

<http://www.geocities.com/dsantachiara/qlpage.htm>

This Qliberated Sbasic programme, written by Andrea with Easymenu is freeware

MINUTES OF QUANTA ANNUAL GENERAL MEETING

Sarah Gilpin

Venue: PORTSLADE TOWN HALL, WEST SUSSEX

Date: 15th APRIL 2007

Meeting opened at 2.10pm

Members present: John Mason (Chairman), John Gilpin (Treasurer), Sarah Gilpin (Secretary), Steve Wollington, Malcolm Cadman, W.P.J. Bailey, C.V. Cave, Ken Bain, Geoff Wicks, Paul Harris, David Gilham, Alex Wells, Dan Abbott, and Per Witte.

Apologies: Roy Brereton, John Gregory, Chris Grogan, John Southern, Alison Southern and Alexia Southern.

Minutes of the previous AGM had been distributed and it was proposed that the meeting should accept the minutes as a true and accurate record.

Proposed by – Christopher Cave

Seconded by – Ken Bain

Accepted by a show of hands

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Matters Arising – There were no matters arising. Geoff Wicks proposed a vote of thanks to the Secretary for a clear set of minutes.

Chairman's Annual Report – John Mason

A précis of the Chairman's report as printed in the Feb/March magazine was given. John (M) expanded on the history behind the special resolution and pointed out that with current membership around 200, 5% of the membership would equate to 10 people, and in the future at the present rate of decline it would soon be down to just 5 members required to call an Extraordinary General Meeting. To prevent a repeat of frivolous requests (as had happened in the past) the proposed change is from '5%' to 'a minimum of 20 members'. It had been decided to keep the deposit for calling such a meeting at £300.00.

The Chairman had additional points to make to his report on matters that had occurred since the Feb/March magazine;

Rich Mellor of RWAP had requested a loan to cover the costs of manufacturing 200 QL keyboard membranes. This is the second batch of these, the first having been sold, and the committee have approved the application. The money will be paid this weekend. The loan is for one year.

A suggestion has been made that a good use of QUANTA funds would be to give every member a copy of QPC2. This has been looked into with the following results:

- The costs would amount to about £9000.00 which would effectively wipe out QUANTA's reserves.
- The 2004 survey showed that 30% of our members already have QPC2.
- The survey also showed that 30% only have a basic QL and therefore have no interest in QPC2.

It was therefore decided that this request was not a viable or required proposition.

Comments from the floor pointed out that those who wished to use QPC had already bought it and they would have no need for a second copy. Also demonstration copies of QPC are available FREE.

There have been a number of possible projects put forward on the ql-users list. Penlight USB's have been discussed as has the Quanta Macro Assembler 'QMAC'.

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QMAC has been followed up with the company holding the licence. They are prepared to sell QUANTA the licence for a reasonable sum, but would charge additional fees for finding the source code from their archives. It has been suggested that we approach Phil Borman to see if he has the source code. This is still an ongoing investigation by the committee.

The Chairman's Annual report was accepted.

Treasurer's Report – John Gilpin

The Treasurer's report was as printed in the Feb/March magazine.

Questions were raised regarding the fixed assets of £8.00, and could these not be completely written off. John (G) replied that to do so could have tax implications and that he had been advised by the auditor to leave the fixed assets on the list.

Comment was made by Geoff Wicks regarding the Committee meeting and Workshop expenses, that taking the two together they came higher than 2005, but not appreciably higher than in previous years.

It was proposed that the meeting accept the Annual Accounts:

Proposed by – Geoff Wicks

Seconded by – Steve Wollington

Carried by a show of hands.

Appointment of Auditor for 2007/8

It was proposed that QUANTA should use the same auditor, Catherine Banks, for the next year:

Proposed by – Sarah Gilpin

Seconded by – Geoff Wicks

Carried by a show of hands

Membership Secretary's Report – John Gilpin

The current membership has decreased to 198, including 1 renewal and 1 new member at this workshop. It is agreed that all lapsed members since 2005 should be contacted, except those that have returned their renewal forms specifically noting their non renewal and those known to have died should not be contacted.

Comment from the floor suggested that a set date for counting membership is desirable and could it be Dec 31st. This would be before renewals for Jan 1st fall due. An update on membership numbers and renewals could be given at the AGM. Geoff Wicks asked that the committee

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consider sending out 2 further editions of the magazine with renewal reminders to those that fail to renew.

Using International bank payments has been looked into; it is expensive and there is the question as to who will be responsible for the charges. It has been decided to continue to use the current method of collecting international membership fees.

John (G) announced that we have had an initial take up of email magazine by 10 – 12 members and that any member who would like their magazine in this format should notify the Secretary, Sarah Gilpin.

Comment from the floor suggested that as the additional £3.00 on the subscription for foreign members was to cover additional postage, those taking email magazines could have their membership reduced to £14.00. It should be looked into seriously as this could be regarded legally as discrimination. A second comment was raised about a reduction in membership for all those taking email magazines as there would be no printing or postage costs involved. John (G) replied that the printing costs would not be significantly reduced by any further reduction in quantity printed and that postage had in general gone up.

It was proposed that the Treasurer's report should be accepted:

Proposed by – Steve Wollington

Seconded by – Ken Bain

It was carried by a show of hands with 1 member voting against the motion.

Committee for 2007/8

The Proxy form had listed Roy Brereton as a proposed member for the committee but as of 15th April 2007 Roy withdrew his nomination and will not stand for committee at this time.

The Chairman declared that since the number of persons nominated did not exceed the number of Officers and Committee Members required the said persons are duly elected as the Committee for 2007/8. John (M) welcomed our new member Dan Abbott to the committee. Dan has agreed to be the QUANTA Webmaster.

Special Resolution No.1 to amend Constitution Clause 9.1

The motion was put to the meeting that the changes to Clause 9.1 as printed in the Feb/March magazine should be accepted.

Members present for = 12 Members present against = 2

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Members present abstaining = 1

Proxy votes for = 12

The motion was carried by a majority vote of 24 to 3 for the amendment.

At this point there were some comments from the members that the deposit should be raised, possibly to £500 or £600, as costs for calling such a meeting must have risen. It was suggested that this should be given due consideration by the committee.

The formal part of the AGM was closed at this point and it was opened to the floor for matters of general discussion.

Geoff Wicks, as editor of QLToday, raised the question of Copyright ownership of articles in the magazine, whether it is the author or QUANTA. A line can be inserted at the front of the magazine along the following lines: 'Unless otherwise stated the copyright of all articles in this magazine are the copyright of Quanta'. It was agreed that committee would look into this question.

It was suggested that QUANTA appoint a news reporter for the magazine and the web site. Geoff Wicks offered to talk to any news hound we get.

There being no further questions or comments the meeting closed at 3.25 pm. The Chairman thanked all those who attended.

COMPLEX NUMBERS

Steve Poole

We have seen how to draw solid 3D pseudo objects using Imaginary-number mathematics. I will now show you how I experimented to discover suitable variables to feed into the program.

Complex_bas basically uses the same fractal method as before, (on lines 180-190), but the power factor and initialisation is so much modified as to be totally original, (the output is fundamentally different).

The inner loop now accepts key presses as follows:

ENTER...Reprints the initialisation parameters.

UP.....Zooms out.

DOWN....Zooms in.

SPACE...Moves on to the next pattern.

ESC.....Quits the program.

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It would be tempting to write a list of interesting initialisation parameters for you to try, so as to see the full range of patterns produced, but the best way to proceed is to run the program and just watch, zooming as necessary. The last parameter printed on the screen is the scale, so you can estimate how far you have zoomed.

The output may seem to stop sometimes, but in fact the routine is just overprinting points at places already dotted, so wait if you have patience and the drawing may suddenly recommence. If you wish you can swap to OVER -1 at line 120:4, so that when the program overprints, points will twinkle. (Or else just hit the space key to move on).

As modified, the program produces considerably more motifs of a much more varied character than in its original form, and is somewhat faster. I spent quite some time waiting for the random number generator to produce a wide sample of pattern types, and was surprised to see such unusual output as a circle sliced in three, and even a perfect square! Randomness being as it is, you may well stumble on a completely original design, as there is a huge range of parameter combinations possible.

If you have the time, replace line 150 by three nested FOR loops to get a more thorough test, but don't try using step factors smaller than 0.1 unless you have many long hours free!. If you are very meticulous and analytical, you will see the logic of the maths formula: Output follows a pattern which calculates the 'Orbit' of successive generated points. Indeed some motifs plot these orbits smoothly without gaps, which therefore appear as beautiful interwoven loops...

Happy imaginary number generating!

```
100 ::
110 REMark Complex_bas by S.Poole, vfev2000, v24oct2006
120 REMark for Quanta.
130 :
140 CLEAR: True_RANDOMISE DATE
150 OPEN#1,con_16: WINDOW 512,256,0,0: INK 4: OVER 0
160 REMark : Change the _pic counter 'n' as necessary:
170 sc=32 : SCALE sc,-sc/1.5,-sc/2: ct=0: n=1
180 :
190 REPEAT loop
```

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```
200 a=RND: b=RND: c=RND: f=RND
210 IF f>.99: NEXT loop: ELSE CLS: x=0: y=0
220 REPeat loop2
230   t=y+(((x>0)-(x<0))*ABS(b*x-c)^f)
240   y=a-x: x=t: POINT x,y
250   k=CODE(INKEY$(#1))
260   SElect k
270     =10 : x=0: y=0
280     =27 : EXIT loop
290     =32 : EXIT loop2
300     =115: f$='flp1_complex_pic'&n: n=n+1
310       SBYTES f$,131072,32767
320     =208: sc=sc*2: IF sc>4096: sc=4096
330       SCALE sc,-sc/1.5,-sc/2: CLS: x=0: y=0
340     =216: sc=sc/2: IF sc<1/16: sc=1/16
350       SCALE sc,-sc/1.5,-sc/2: CLS: x=0: y=0
360   END SElect
370 END REPeat loop2
380 END REPeat loop: WINDOW 256,206,256,0: OVER 0
390 ::
400 ::
410 REMark True_RANDOMISE_bas
420 REMark by Mark Knight
430 REMark QLT v1,i6, mar-apr97, p.15.
440 REMark RANDOMISE is only 16-bit!
450 REMark Freeware gift for QL Users!
460 :
470 DEFine PROCedure True_RANDOMISE(_32_bits)
480 LOcal adr: adr=ALCHP(4)
490 IF adr<0: RANDOMISE: RETurn
500 POKE_L adr,_32_bits
510 :
520 REMark Get 16 bits only:
530 pk=PEEK_W(adr+2)
540 RANDOMISE pk
550 RECHP adr
560 END DEFine
570
```

End of Listing.

When I switched to a PC, I decided to install Linux instead of Windows. There were various good reasons: it offered superior reliability and security; it was free; and it saved me from paying money to a company which was the largest contributor to George W. Bush's re-election fund.

The obvious choice for a QL emulator seemed to be UQLX. Unfortunately, it failed to compile, with nearly one hundred error messages. Enquiries on the QL mailing list revealed that it is very badly written and will only compile under old versions of gcc, and a binary produced on one system will often fail to run on another. The author, Richard Zidlicky, abandoned it years ago. Marcel Kilgus has recently cleaned up the code sufficiently to compile it (still with lots of warnings) but he has made it clear that he has no desire ever to look at it again! So, if you can get it to run, you are still liable to have it fail in the future with little chance of getting help: this is software for experienced C programmers only.

This meant that I would need to run an emulator intended for Windows, with the aid of Wine. Since I have some big Minerva-flavoured SuperBASIC programs which would need many changes to run under SMSQ, QPC was not suitable for me: instead, I opted for QemuLator.

Installation

The file to download is called "setup.exe", which I ran with the command

```
wine ~/downloads/setup.exe
```

and the program was installed, without a hitch, as

```
~/wine/drive_c/program files/Qemulator/Qemulator.exe
```

An icon was put on the desktop, but it didn't work, so I removed it and added a menu entry to issue the command

```
wine "c:files.exe"
```

Note the use of Windows-style syntax in quotation marks, since Linux does not accept spaces in names.

QemuLator comes with Minerva 1.97, which lives in /Qemulator/roms/, together with Toolkit II. If you prefer the original QDOS, you can get it from your QL. The version in the memory of an expanded QL has been patched, so turn off the QL, disconnect the expansion board, re-start, and enter

Screen handling

A 512x256 pixel screen will be very small on a PC, unless you are using a low resolution. Thankfully, QemuLator has a **full-screen** mode, in which each QL pixel is represented by a block of PC pixels. Alternatively, there is a **fast-screen** option, which switches the PC to a resolution of 640x480 pixels. However that makes it difficult to multitask the emulator with other programs (few working well at such an old-fashioned resolution), plays havoc with your desktop layout, and gives a poor display on a TFT screen.

File handling

QemuLator can use both the native filing system of the PC and a QDOS system. The latter is achieved on the hard disk by creating a special file called QXL.WIN, which is seen by QDOS as a hard disk partition. This has to be done with the utility QXLtool, which I couldn't get to work. But why have the complication of two separate filing systems anyway? The obvious answer is to stick to the Linux one.

However, QDOS programs have the unusual feature of storing their data-space requirement in the directory rather than in the file. This means that if you copy them to another filing system, QDOS no longer has the information required to run them. QemuLator solves this by adding a header to each executable file.

When you create a binary program under the emulator, this header is added automatically. Before copying a program from the QL, however, you need to add the header with QLtoWin_exe. This is provided in zipped form, so that it can be transferred to the QL via a disk; it lives in
~/.wine/drive_c/program files/QemuLator/QL Software/FileUtil
There is also a version MDVtoWin_exe which will circumvent some forms of copy protection.

Having patched a batch of QL programs, zip them and put them on a QDOS disk, from which they can be copied to the PC hard disk with the Linux version of QLtools, using the command

qltools /dev/fd0 -n filename > ~/directory/filename

Unpack them with the QL version of unzip under the emulator, or the Linux version will convert all the underscores in extensions to full stops.

Linux directories are accessed by referring to them as if they were

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QDOS devices. When not in full- or fast-screen mode, eight microdrive slots are depicted below the QL screen, each showing the part of filing system which is mapped onto it. These notional drives can be referred to as MDV, FLP, or WIN: all device names are taken as equivalent, saving you from having to configure programs for the hard disk. My default settings are

QDOS	= Windows	= Linux	used for
FLP1_ MDV1_ WIN1_	q:	/home/david/QL/	PROGD\$
FLP2_ MDV2_ WIN2_	d:	/home/david/	DATAD\$
FLP3_ MDV3_ WIN3_	a:	/media/floppy/	

Device q: was defined by configuring Wine; if I had not created it, I could have set slot 1 to "d:". Remember to mount a floppy before using it!

This article, written with Quill, was saved as
WIN1_documents_emulation_doc

QemuLator converted this to
d:_doc

Wine replaced that by
/home/david/QL/documents/emulation_doc

You can alter the assignments, or add extra ones, at any time by clicking on the appropriate slot.

External connections

The registered version of QemuLator supports the serial and parallel ports. The Wine manual explains how to make links from com1 to /dev/ttyS0 (serial) and from lpt1 to /dev/lp0 (parallel). Remember that the Linux devices and the links to them must be read/write enabled for all users, or "OPEN #3, SER" will be met by "permission refused"! TCP/IP is also available: I haven't tried this, since I can't see why anyone would prefer the unfriendly QL version of Lynx to the Linux one, let alone to Firefox.

Speed

The free, demo version of QemuLator runs somewhat faster than the original QL. Once you have registered, you have a choice between original, Super Gold Card, and full speeds. Using Rolf Ritter's QL-Test, the timings were:

machine	QL	SGC	Qemulator
---------	----	-----	-----------

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speed screen	original		full speed			
	full	fast	full	fast		
loops 55	3	11	10	<1	<1	
maths	55	3	10	10	<1	<1
text 78	8	54	43	13	8	
scroll/pan	45	11	17	14	13	8
graphics	97	6	32	25	25	15

The figures for the QL are Rolf's, using a MGG ROM; the rest are mine, using Minerva. Using the full-screen window obviously slows things down, as does the use of Wine, but the result still is comparable to a Super Gold Card on my PC (AMD Sempron 2600+). The "original" speed is obviously quite fast, and you might need something like SlowGold for games.

Configuration

QemuLator creates a configuration file which records:

- ROM (e.g. Minerva)
- cartridge emulation (e.g. TK2)
- screen resolution
- MDV slot assignments
- speed
- memory size (128KB to 16MB)
- devices enabled

Several configuration files can be created and one nominated as the default, or another selected at start-up.

Problems

There are a few difficulties, mostly caused by having two layers of emulation.

1. The full-screen mode maps the QL screen onto the entire PC screen. Unfortunately, part of the PC screen is then taken by the Linux title and menu bars, pushing the QL screen down and cutting off the last lines. The size of the screens for SuperBASIC and some programs are obviously configurable, but a few difficulties remain. To use Quill, I've moved the screen up to get rid of the bars and then enlarged it at the bottom, but a line is still lost. For a few programs, I just have to use the fast screen mode. Part of the QL screen will also be displaced by the panel, but that can be put at the side, which I feel is a better position anyway.

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2. QDOS disks cannot be read without QLtools: when QemuLator attempts to access a: and Wine translates this into a request to use /media/floppy, Linux tries to get the disk directory and naturally fails.

3. The Minerva character composition feature no longer works, for Wine fails to pass through <CTRL><ENTER>.

4. On returning from another workspace with <CTRL><ALT><CURSOR>, the keyboard occasionally behaves as if <CTRL> were being held duse.

5. The Editor occasionally refuses a file with a "bad medium" error, but transferring it to RAM1_ and loading from there takes care of the problem.

6. "EDIT XXX" deletes line XXX.

There may be other problems, but since I use very little QL software these days, I'm not likely to have discovered them.

Conclusion

The manual, edited by Phoebus Dokos, in PDF format, is excellent. QemuLator is a really professional product and well worth the price of \$47 in comparison with other QL software. On the other hand, it's the only non-QL program on my computer which cost me a penny: one of the blessings of Linux!



Brighton is the most awkward town to find your way around, even with a Sat Nav in the car. John and Sarah Gilpin, John Mason and Dan Abbott came into Brighton from Gatwick Airport for the dinner, hosted by West Sussex Subgroup, and the Sat Nav instructed us to do a 'U-turn' instead of a right turn into St George's Road to reach Bom-Banes. After that we were following instructions to turn right from a left lane across two lanes, just not possible. After a number of left hand turns we found the restaurant. Next find a parking space, which took some more circling around. All the effort was worth it for an excellent meal and even better, some wonderful entertainment from the owner and his wife. Our



Above and Left: Serious discussion regarding the menu at Bom-Banes Restaurant

Below: After dinner "Fringe" entertainment.



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thanks go to Roy Wood for arranging such a pleasant evening to start the 2007 AGM weekend.

Sunday was a warm sunny spring (or should I say summer) day. It was a pity that the good weather did not bring more people to Portslade and the workshop. A quick count showed that just over 10% of the QUANTA membership came. So once more the attendance was disappointing both for the traders and for those attending the AGM in the afternoon. Jochen Merz had been unable to come and was missed by those attending.

Dan Abbott, a new QUANTA member in the Nemqlug Subgroup has been working on a new Web site for QUANTA and gave a presentation on the progress so far. It was well received by members and traders, and there was plenty of lively discussion as Dan had asked for feed back from the audience. It is intended that the web site will go 'live' by the end of April or early May 2007. (Yes, THIS year – fulfilling yet another of the long term promises made by the committee).

See article on page 39 [Ed]

The AGM started at 2.10 and was attended by 14 members, including the committee. A number of spare copies of the magazine were available for those who had forgotten their copy and wished to be reminded of the reports. All the reports were prévised by the relevant committee member and all were carried by a show of hands.

A history behind the Constitution Clause 9.1 was given by the Chairman before members were asked to vote on the Special Resolution. The motion to change the clause as per the resolution was carried by 24 votes (including Proxy votes) to 2 against with 1 abstention.

Roy Brereton made a brief visit to deliver some boxes of QL related parts from an ex member in Cornwall, but was unable to stay for the workshop or AGM. Roy has stated that he is too busy to stay a member of the committee at present and his presence will be sorely missed. Dan Abbott has been voted onto the committee, which now stands at 4 members.

As usual the Gilpins came home with more than they brought, Malcolm Cadman gave them some books formerly held by the London Subgroup, as a method of getting all the books onto one listing. The boxes of books together with the boxes brought by Roy meant that we had to utilise the boot of another Nemqlug member, Alex Wells, to get everything back to Manchester.

Our thanks, once again, go to Roy and his catering team for making the workshop and AGM an enjoyable experience. We look forward to seeing you all again at next year's AGM.

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Left: Quanta Members taking an enthusiastic interest at the 2007 AGM.

All Pictures by courtesy of and © John Mason (Quanta Chairman)

USING SSSS(2)

George Gwilt

In the previous article I showed how to use the sampled sound system in a Q40/60 and QPC2 to play files. This time I show how a file containing sounds can be produced. First of all we have to remember that a pure sound on one note consists of a sine wave. The note A above middle C is the note used by oboe players to allow an orchestra to tune up. This note is defined as having a frequency of 440 per second.. This means that a complete sine wave takes place 440 times in each second. To send a note of frequency f to the SSSS we need to send the value of the sine wave at intervals of $1/20000$ of a second. If the samples are numbered 0, 1, 2 etc. the value of the sine curve for number y is

$$\sin(2\pi fy/20000).$$

If $f = 440$, this gives the shape of the note A. This expression has values ranging from -1 to $+1$. We have to send bytes of value between 0 and 255 to SSSS. If we multiply the sine values by 127 and add 128 we will have numbers between 1 and 255. This misses out the value 0, but I doubt if this will be missed when the note is played.

We can build on this base to provide more interesting sounds. The first step is to add different notes together. For example, the sound from a musical instrument will have many overtones. An overtone is a note an integral number of times the fundamental frequency. These overtones will usually be less intense than the fundamental, falling off the higher they are. We should thus make allowance for different intensities of the constituent notes. Some should be louder than the others. We need to know, then for each note, its pitch and its loudness.

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However, even with this variation it must be obvious that the resulting sound will be a shade boring. The note might sound like a klaxon signalling the end of a shift in some factory.

To add variety it would be a good idea to be able to modify the pitch of the note while it is being played. Also the loudness could be made to vary. For example, a piano note starts with a bang and then decays. perhaps such a sound can be produced.

With this in mind, I devised the following plan to describe the sound I wanted to produce. I would set up a definition file as follows:

```
*****
*           Format of definition file           *
*
* z         The number of items                *
*
*           Then - for each z                  *
*
* f         The frequency                      *
* a         The amplitude                      *
* p         The phase                          *
* gf%      the frequency program number *
* ga%      the amplitude program number *
* gp%      the phase program number         *
*
* Each of the programs gives the value *
* of the item for time t                   *
*****
```

You will notice that I have added "phase" to the items to be defined. This signals the stage of the sine wave the particular constituent starts at. If, for example, there are two constituents each of the same frequency (pitch) and amplitude (loudness) and the phase difference is \pm then they will cancel each other out! Apart from that rather drastic outcome phase seems to have little effect.

The three items $gf\%$, $ga\%$ and $gp\%$ need explaining. In order to be able to produce more interesting sounds such as something resembling a note produced by a piano, I have added the possibility of modifying the three constituents. The three "g" numbers give the number of a modifying program. Thus $gf\% = 2$ produces an increasing pitch while $gf\% = 3$ produces

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a decreasing pitch. The programs for amplitude do much the same. Programs number 1 all do nothing. That is they leave the item unmodified.

So that you can see more exactly what each wave form is I give the instruction producing a value for the yth sample.

```
1000 FOR x=1 TO z:samp=samp+Funca(x,y)*SIN(Funcp(x,y)+Funcf(x,y))
```

Funca, Funcp and Funcf are functions returning the values of amplitude, phase and frequency for item x at time y. I have arbitrarily chosen y to run from 0 to 20479. This produces about 1 second of sound.

Here are these functions:

```
3030 DEFine FuNction Funca(r,t)
3040 LOCAl x
3050 x=ga%(r)
3060 SELEct ON x
3070 =1:RETurn a(r)
3080 =2:RETurn a(r)*t/20479
3090 =3:RETurn a(r)*(20479-t)/20479
3100 END SELEct
3110 RETurn -1:REMark Error
3120 END DEFine
3130 :
3140 DEFine FuNction Funcf(r,t)
3150 LOCAl x
3160 x=gf%(r)
3170 SELEct ON x
3180 =1:RETurn f(r)
3190 =2:RETurn f(r)*(1+t/20479)
3200 =3:RETurn f(r)*20479/(t+20479)
3210 END SELEct
3220 RETurn -1:REMark Error
3230 END DEFine
3240 :
3250 DEFine FuNction Funcp(r,t)
3260 LOCAl x
3270 x=gp%(r)
3280 SELEct ON x
3290 =1:RETurn p(r)
3300 END SELEct
3310 RETurn -1:REMark Error
3320 END DEFine
```

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The first program in each case makes no modification.

The second program for the amplitude increases the proportion from zero to 1 and for the frequency doubles it from start to finish, thus raising it an octave.

The third program for the amplitude decreases the proportion from 1 to zero and for the frequency halves it thus putting it down an octave.

It is obvious that this system can be expanded to include a bigger variety of program. I would be interested to hear from anyone who has suggestions to make.

The result of the calculation for each step in time is given in the variable called samp. You will see that each value can be the result of several additions, depending on the value set for z. It is necessary to scale the values of samp so that they will be neither too small, so that the sound is inaudible, nor too large so that the value will not fit in a byte. This scaling is done by examining all the values given for the amplitude and finding the maximum contribution for any of the points of time. This maximum is used to scale the results so that the values of samp all fall in the range -128 to 127.

Before finishing I would like to mention one or two changes I made in the assembler program discussed in the last article. The new version allows different sounds to be sent to the left and right speakers, thus allowing stereo effects to be produced. Another change was to allow the user to specify the number of times the samples can be played. Finally, instead of waiting for five ticks when the buffer becomes full, the number of ticks to wait is calculated from the length of queue waiting to be played.

Next time I intend to describe a program called "SOUND" which draws all this together and allows a user to experiment.

I hope by then that "SOUND" will be available on the SQLUG site at:

www.jms1.supanet.com

The QUANTA web site was relaunched on May 3rd 2007 at:
<http://www.quanta.org.uk>

I gave a demonstration of the new QUANTA web site at the Portslade Workshop and AGM on March 15th 2007 and it was well received by QUANTA members. It was encouraging to receive favourable comments on the usability and layout of the new site. The committee carried out extensive usability testing before agreeing to the design and layout of the site.

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The new QUANTA web site has the following sections

- **About QUANTA**
- **News and Events**
- **QUANTA Magazine**
- **QUANTA Subgroups**
- **QL systems**
- **QL Traders and Links**

Rather than duplicate content elsewhere, the QUANTA site will act as a gateway to other QL resources such as the QL Wiki and Dilwyn Jones' site.

Traders

QUANTA trading members (Traders) have a prominent place on the new web site:

<http://www.quanta.org.uk/traders>

Traders are arranged in a 'gallery', with a full page advertiement for each trader and a link to each trader's web site. There are also Trader's logos at the foot of each page:



Future developments on the QUANTA web site.

In the coming months, we hope to scan in back issues of the QUANTA magazine and add more information on different QL systems. There should be something to satisfy all QLers, whether they are running an emulator, a black box QL or a QL compatible.

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I hope that the new site will attract new members to QUANTA, showcase exciting new developments within the QL community, and publicise forthcoming QUANTA related shows and workshops.

The web site is intended to complement the QUANTA magazine. Our recent series on robotics, GPS mapping and genealogy demonstrate that the QL community is alive and well.

We are also keen to raise the profile of the all important QUANTA sub groups, and explore ways of devolving responsibility for maintaining content to sub groups.

If you have any suggestions for taking the QUANTA web site forward, please email webmaster@quanta.org.uk or open a thread on the ql-users list.

Screen shots

Subgroups

<http://www.quanta.org.uk/subgroups>



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The QL Users and Tinkers Association

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QUANTA Subgroups

The following subgroups are active across the UK. If you are interested in forming would like your group adding to the list, please contact the editor or webmaster.

You can download a list of subgroups in PDF format, or browse the details of each

- THE WEST MIDLANDS QL USER GROUP
- QUANTA DORSET SUBGROUP
- LONDON QL AND QUANTA GROUP
- NEMQLUG - THE NORTH EAST MANCHESTER QL USER GROUP
- SQLUG - SCOTTISH QL USER GROUP
- SOLENT SUBGROUP
- SQSG - SURREY QUANTA SUBGROUP
- SUSSEX QL USER GROUP



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The QL Users and Tinkers Association

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Which QL system is best for me?

Many QL enthusiasts retain their original QL for games, Xchange and SuperBASIC working QL system will include an expansion card such as a Trump Card and a p

A number of QL emulators are now available for the PC which enable one to take While running all your old QL software, QDOS and SMSQ/E.

- Which QL system is best for me? (DJC article, PDF format)
- Returning to the QL (DJC article, external site)
- About the QL (DJC article, external site)

The Diversity of QL Systems and QL Users

QL Traders - Click on trader's name to view latest advert

- Jochen Merz Software
- QBranch
- T F Services
- RWAP Services
- Just Words!
- QL Today (Our Sister Magazine!)

Jochen Merz Software

- Specialises in SMSQ/E QL Operating System
- Visit Jochen Merz's Site.

Qbranch

- Feeling out on a limb? Reach out for QBranch
- Visit the Qbranch Web Site.

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SUBGROUP MEETINGS

THE WEST MIDLANDS QL USER GROUP

This long-running group has moved back to its previous venue, the Queens Head pub in the City Centre. Meetings remain open to Quanta members and non-members alike. The Queens Head is in Steelhouse Lane, Central Birmingham, four minutes walk from Snow Hill main-line railway station and has ample street parking nearby.

Meetings are usually on the first and third Monday of each month (but not on Bank holidays unless the previous one was cancelled for that reason). After your first meeting you're expected to pay £1 each time towards the organisation and monthly newsletter costs - except once a year when the group pays all those who attend a pound instead (We provide food twice a year for those who attend the AGM and the group's birthday party) and at meetings we discuss all sorts of things, QL-related and otherwise, usually from about 8:20pm onwards till 10:30 or later. The group owns QL hardware, a disk library and subscribes to relevant magazines. People can join the mailing list for £3.50 per year, even if they can't attend regularly.

The contact number remains Mike Bedford White's, on 0121 708 2560, anytime after 11 am.

QUANTA DORSET SUBGROUP

Meetings are held, on the second Sunday of each month at the Merley Community Centre in Harrier Drive, Merley, just south of Wimborne Minster. Time: 2.00pm to 5.00pm. All are welcome.

John Meadows Tel: 01202 576189, or John Mason, 01425 275894.

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LONDON QL AND QUANTA GROUP

Meetings are held in the School Room, which is the basement of the Borough Welsh Congregational Chapel, 90, Southwark Bridge Road, London SE1. This is almost opposite the junction with Marshalsea Road, at the other end of which, 5 minutes walk away, is the Borough Underground Station. Free parking is easily available in Southwark Bridge Road for road users, Cyclists are welcome.

Members currently each pay a subscription of £30 per year towards the cost of the hire of the hall and a small additional charge is made for tea/coffee - biscuits are then provided free.

Please bring your QL equipment if possible, all types welcome, e.g., PC portable running emulators. The Group has some systems stored at the venue for its use. In addition, there are lots of donated second user equipment, books, magazines, etc, available for purchase.

Time: 2.00pm to 6.00pm, on the second Sunday of the month.

No meetings are held in either December - winter break, or August - summer break. Giving 10 meetings a year.

Malcolm Cadman: Tel: 020 8691 5780; email: QL@mcad.demon.co.uk

NEMQLUG - THE NORTH EAST MANCHESTER QL USER GROUP

Meetings are held at 181, Urmston Lane, Stretford, Manchester. M32 9EH (Near Junction 7 of M60 Motorway - Was Junction 7 M63 Motorway). Our informal meetings start at 7 p.m. and finish at 11p.m. All welcome.

Meets on the last Thursday of each month (except December).

John/Sarah Gilpin 0161-865 2872 (thegilpins@btopenworld.com)

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SCOTTISH QL USERS GROUP

SQLUG meets at George Gwilt's home every second Sunday in the month. Please contact George Gwilt before coming to get the location.

Geogwilt@aol.com

SOLENT SUBGROUP

Meets at Botley Market Hall, all welcome. Park at the back and use side entrance.

1st Saturday of the month from 2.00 pm to 6.00 pm.

Graham Evans, Tel: 023 8040 3350.

SURREY QUANTA SUBGROUP (SQSG)

Venue is St Giles Church Hall, Ashted. (This is the other side, towards the downs, of the main Epsom - Leatherhead road, up Park Lane which is at the Epsom end of the town).

From 8.00 to 10.30 pm on the last Wednesday of each month, except December.

Ken Bain 01932 347 432 (to midnight), kenb@bcs.org.uk

SUSSEX QL USER GROUP

Currently without a meeting place, anyone interested should contact Keith Mitchell or Roy Wood.

Roy Wood, 01273 386030 or Keith Mitchell, 01903 742263.